

REMARKS

Initially, Applicants note that the Examiner's formatting of the Office Action made it very difficult to read. Applicants respectfully request that the Examiner address each claim separately in different paragraphs instead of commingling the discussion of several claims into one long, drawn-out paragraph. Applicants also request that if the Examiner uses multiple references to reject a claim, that the Examiner address what each reference discloses or does not disclose with respect to a particular claim before moving on to the next claim, instead of describing what one reference discloses with respect to all of the claims and then describing what the other reference discloses with respect to all of the claims.

In the final Office Action, the Examiner rejected claim 80 under 35 U.S.C. § 112, second paragraph, for allegedly failing to appropriately define the invention; rejected claim 85 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite; rejected claims 44-49, 68-70, 80-84, and 86 under 35 U.S.C. § 102(e) as allegedly anticipated by McKeown et al. (U.S. Patent No. 6,647,019); rejected claims 51, 52, 54, 56, 58, 66, 67, 73, and 78 under 35 U.S.C. § 103(a) as allegedly unpatentable over McKeown et al. in view of Stevens (U.S. Patent No. 5,463,486); and rejected claims 50, 71, 72, and 87 under 35 U.S.C. § 103(a) as allegedly unpatentable over McKeown et al. in view of Cisneros (U.S. Patent No. 5,157,654). The Examiner identified claim 85 as allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph. The Examiner objected to claims 53, 55, 57, 59-65, 74-77, and 79 as dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the features of the base claim and any intervening claims.

By this Amendment, Applicants propose amending claims 44 and 85 to improve form.

Applicants appreciate the Examiner's identification of allowable subject matter, but respectfully traverses the Examiner's rejections under 35 U.S.C. §§ 112, 102, and 103. Claims 44-87 remain pending.

In paragraph 2 of the final Office Action, the Examiner rejected claim 80 under 35 U.S.C. § 112, second paragraph, for allegedly failing to appropriately define the invention. The Examiner alleged that claim 80 is narrative in form and does not contain any positively recited steps of a specific process (final Office Action, page 2). Applicants respectfully traverse the rejection.

Claim 80 is not narrative in form. Claim 80 is directed to a method for controlling the transfer of data packets through a switching device. Claim 80 recites the step of transferring data packets and flow control together on a same path through the switching device. This step is positively recited to define the method of claim 80.

Accordingly, Applicants respectfully request the Examiner's reconsideration and withdrawal of the rejection of claim 80 under 35 U.S.C. § 112.

In paragraph 3 of the final Office Action, the Examiner rejected claim 85 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for not defining the variables "n," "k," and "m." Applicants have amended claim 85 to clarify that variables "n," "k," and "m" are integers. Accordingly, Applicants respectfully submit that claim 85 is definite and request that the rejection of claim 85 under 35 U.S.C. § 112 be reconsidered and withdrawn.

In paragraph 5 of the final Office Action, the Examiner rejected claims 44-49, 68-70, 80-84, and 86 under 35 U.S.C. § 102(e) as allegedly anticipated by McKeown et al. Applicants respectfully traverse the rejection.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. McKeown et al. does not disclose or suggest the combination of features recited in claims 44-49, 68-70, 80-84, and 86.

Amended independent claim 44, for example, is directed to a line card in a system for transferring data packets, where the system includes a plurality of line cards. The line card comprises a request generator to generate a request signal to be transmitted to a destination line card in order to receive a grant signal authorizing transferring of data to the destination line card; a data cell transmitter to transmit a data cell to the destination line card upon receipt of the grant signal from the destination line card; and transmit logic to receive a grant signal and a data cell which are unrelated to each other from a grant generator and the data cell transmitter, respectively, and transmit the grant signal and the data cell together in a data transfer unit.

McKeown et al. does not disclose or suggest the combination of features recited in claim 44. For example, McKeown et al. does not disclose or suggest a request generator, of a line card, to generate a request signal to be transmitted to a destination line card in order to receive a grant signal authorizing transferring of data to the destination line card.

The Examiner alleged that McKeown et al. discloses a request generator to generate a request signal (Fig. 7) to be transmitted to a destination line card (Fig. 3, line card 330z) in order to receive a grant signal (Fig. 8) authorizing transferring of data to the destination line card (Fig. 3, line card 330z) (Office Action, page 3). Applicants respectfully disagree.

McKeown et al. discloses:

The LCS-2 protocol utilizes three Phases to transmit an LCS-2 cell from linecard 330 to port module 340: a Request Phase, a Grant Phase and a Transmit Phase. When linecard 330a has received data that requires routing to an egress linecard (e.g. 330z), linecard 330a relies upon the Request Phase to alert port module 340a that data is pending at linecard 330a. When ingress port module 340a is ready to receive this data, port module 340a relies upon the Grant Phase to inform linecard 330a that the port module 340a is ready to receive cell data. Upon receiving such readiness information from port module 340a, linecard 330a relies upon the Transmit Phase to transmit cell data to port module 340a.

(col. 11, lines 37-49). In other words, McKeown et al. discloses that line card 330a transmits a request to port module 340a of switch core 320 (Fig. 3) and receives a grant from port module 340a when port module 340a is ready to receive the data. Nowhere does McKeown et al. disclose or suggest a request signal to be transmitted to a destination line card in order to receive a grant signal authorizing transferring of data to the destination line card, as required by claim 44. Instead, as explained above, McKeown et al. discloses that the line card sends a request signal to the switch core. McKeown et al. does not disclose or suggest that the request signal is transmitted to the destination line card.

McKeown et al. also does not disclose or suggest a data cell transmitter to transmit a data cell to the destination line card upon receipt of the grant signal from the destination line card, as further recited in claim 44.

The Examiner alleged that McKeown et al. discloses a data cell transmitter to transmit a data cell to the destination line card (Fig. 3, line card 330z) upon receipt of the grant signal (Fig. 8) from the destination line card (final Office Action, page 3). Applicants respectfully disagree.

At column 11, lines 37-49, McKeown et al. discloses that line card 330a receives a grant from port module 340a of switch core 320 (Fig. 3) when port module 340a is ready to receive the data from line card 330a. Nowhere does McKeown et al. disclose or suggest a data cell transmitter to transmit a data cell to a destination line card upon receipt of a grant signal from the

destination line card, as required by claim 44. Instead, as explained above, McKeown et al. discloses that the switch core generates and transmits a grant signal to the line card.

McKeown et al. also does not disclose or suggest transmit logic to receive a grant signal and a data cell which are unrelated to each other from a grant generator and the data cell transmitter, respectively, and transmit the grant signal and the data cell together in a data transfer unit, as further recited in claim 44.

The Examiner alleged that McKeown et al. discloses transmit logic to receive a grant signal (Fig. 8) and a data cell which are unrelated (col. 13, lines 23-28 and 49-52) to each other from a grant generator and the data cell transmitter, respectively, and transmit the grant signal (Fig. 8) and the data cell together in a data transfer unit (col. 13, lines 12-64) (final Office Action, page 3). Applicants respectfully disagree.

At column 13, lines 12-64, McKeown et al. discloses:

To illustrate the LCS-2 protocol scheme in packet-switch system 300, FIG. 5 illustrates a high level schematic of the Request Phase, Grant Phase and Transmit Phase, which results in the transmission of a unicast LCS-2 data cell (an LCS-2 request cell, which contains cell data that is the focus of this illustrative example within the Cell Data field), from ingress linecard 330a to port module 340a. The Request Phase is initiated when linecard 330a transmits an LCS-2 request cell, which identifies that linecard 330a is ready to transmit cell data to port module 340a. The Label_1 field within this LCS-2 request cell identifies to which flow the requested LCS-2 request cell belongs. The Cell Data field, which is included within this LCS-2 request cell, does not correspond to the cell data that is currently ready to be transmitted, but rather relates to a previous cell data that has been pending within the linecard 330a, which has been granted permission to be transmitted to the port module 340a. The cell data, which is ready for transmission and which has triggered this current Request Phase, will be incorporated into a subsequent LCS-2 request cell, which will be later identified as the LCS-2 data cell.

When port module 340a receives the LCS-2 request cell, port module 340a stores the request (field) until port module 340a is ready to receive the cell data from linecard 330a. The details of how and when the Grant Phase, corresponding to granting the request of the linecard 330a, is initiated is specific to each implementation of packet-switch system 300. In a preferred embodiment, scheduler module 360 examines all requests within each port module 340 of system 300 and selects and triggers the Grant Phase for specific requests that are stored within one of more of these port modules 340. Once port module 340a is triggered to initiate the Grant Phase for a specific request, port module 340a transmits an LCS-2 grant cell to linecard 330a to signal linecard 330a that port module 340a is ready to receive the cell data corresponding to the request. The Grant field of this LCS-2 grant cell includes the same Label_1 field as the original LCS-2

request cell. When ingress linecard 330a receives the LCS-2 grant cell, the Transmit Phase is initiated by linecard 330a including the cell data in the next LCS-2 request (data) cell, which is transmitted to port module 340a.

Since linecard 330a only transmits an LCS-2 data cell to port module 340a when port module 340a grants the linecard 330a permission to transmit the cell data, the amount of buffering required within port module 340a is even less than the amount of buffering required in an LCS-1-based system 300. For example, since the primary buffering within a port module 340a of an LCS-2-based system 300 is of request information, rather the cell data itself, less buffering is needed to store the smaller amounts of information. Therefore, the size of the switch core 320 of a system 300, which utilizes the LCS-2 protocol, can be further reduced in size.

In this section, McKeown et al. discloses that port module 340a transmits a grant cell to line card 330a to signal to line card 330a that port module 340a is ready to receive the cell data corresponding to the request sent by line card 330a. McKeown et al. discloses that the grant cell includes a header portion and a data portion (col. 12, lines 19-42). Nowhere does McKeown et al. disclose or suggest that line card 330a transmits the grant cell or that the grant cell includes a grant signal and a data cell that are unrelated to each other, as required by claim 44.

For at least these reasons, Applicants submit that claim 44 is not anticipated by McKeown et al.

Independent claim 45 is directed to a switching device for transferring data packets. The switching device comprises one or more source line cards, each including a request generator to generate a request signal to be transmitted in order to obtain an authorization to transmit data; one or more destination line cards, each including a grant generator to generate and send back a grant signal to a source line card in response to the request signal received at a destination line card to authorize the source line card to transmit a data cell to the destination line card; and a switching fabric coupled to the source line card and the destination line card, the switching fabric being configured to receive and transmit the request signal, the grant signal, and the data cell to the appropriate line cards, where the switching fabric is configured to transmit at least two of a

request signal, a grant signal, or a data cell together in a single data transfer unit.

McKeown et al. does not disclose or suggest one or more destination line cards, each including a grant generator to generate and send back a grant signal to a source line card in response to the request signal received at a destination line card to authorize the source line card to transmit a data cell to the destination line card.

The Examiner alleged that McKeown et al. discloses one or more destination line cards (Fig. 3, line card 330z), each including a grant generator to generate and send back a grant signal (Fig. 8) to a source line card (Fig. 3, line card 330a) in response to the request signal (Fig. 7) received at a destination line card (Fig. 3, line card 330z) to authorize the source line card (Fig. 3, line card 330a) to transmit a data cell to the destination line card (Fig. 3, line card 330z) (final Office Action, page 4). Applicants respectfully disagree.

At column 11, lines 37-49, McKeown et al. discloses that when an ingress line card 330a has data to send to egress line card 330z, line card 330a sends a request cell to port module 340a of switch core 320 and when port module 340a is ready to receive the data, port module 340a sends a grant cell to line card 330a. Nowhere does McKeown et al. disclose or suggest that egress line card 330z generates and sends back a grant signal to source line card 330a in response to the request signal received at destination line card 330z to authorize source line card 330a to transmit a data cell to destination line card 330z, as required by claim 45. Instead, as explained above, McKeown et al. discloses that switch core 320, not destination line card 330z, generates and sends a grant cell to line card module 330a.

McKeown et al. also does not disclose or suggest a switching fabric coupled to the source line card and the destination line card, the switching fabric being configured to receive and

transmit the request signal, the grant signal, and the data cell to the appropriate line cards, where the switching fabric is configured to transmit at least two of a request signal, a grant signal, or a data cell together in a single data transfer unit.

The Examiner alleged that McKeown et al. discloses a switching fabric (Fig. 3, switch core 320) coupled to the source line card (Fig. 3, line card 330a) and the destination line card (Fig. 3, line card 330z), the switching fabric (Fig. 3, switch core 320) being configured to receive and transmit the request signal (Fig. 7), the grant signal (Fig. 8), and the data cell to the appropriate line cards (Fig. 3, line cards 330a, 330z), where the switching fabric (Fig. 3, switch core 320) is configured to transmit at least two of a request signal (Fig. 7), a grant signal (Fig. 8), or a data cell together in a single data transfer unit (col. 13, lines 12-64) (final Office Action, page 4). Applicants respectfully disagree.

Column 13, lines 12-64, of McKeown et al. is reproduced above. Nowhere in this section, or elsewhere, does McKeown et al. disclose or suggest, for example, that switch core 320 receives a grant signal or transmits a request signal, as required by claim 45. Instead, McKeown et al. discloses only that switch core 320 transmits a grant signal and receives a request signal (col. 13, lines 33-47).

For at least these reasons, Applicants submit that claim 45 is not anticipated by McKeown et al. Claims 46-49 depend from claim 45 and are, therefore, not anticipated by McKeown et al. for at least the reasons given with regard to claim 45.

Independent claim 68 is directed to a line card in a switching device for transferring data packets, wherein the switching device includes a plurality of line cards. The line card comprises a request generator to generate a request signal to be transmitted to a destination line card in

order to receive a grant signal authorizing transferring of data to the destination line card; and a data cell transmitter to provide a data cell to be transmitted to the destination line card upon receipt of the grant signal from the destination line card, where a request signal and a data cell are transmitted together in a single data transfer unit.

McKeown et al. does not disclose or suggest the combination of features recited in claim 68. For example, McKeown et al. does not disclose or suggest a request generator to generate a request signal to be transmitted to a destination line card in order to receive a grant signal authorizing transferring of data to the destination line card.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, page 5). Applicants respectfully disagree. As explained above, McKeown et al. discloses that line card 330a sends a request cell to switch core 320 (col. 11, lines 37-49). Nowhere does McKeown et al. disclose or suggest that the request cell is sent to a destination line card, as would be required by claim 68.

McKeown et al. also does not disclose or suggest a data cell transmitter to provide a data cell to be transmitted to the destination line card upon receipt of the grant signal from the destination line card, where a request signal and a data cell are transmitted together in a single data transfer unit, as further required by claim 68.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, page 5). Applicants respectfully disagree. As explained above, McKeown et al. discloses that line card 330a receives a grant cell from switch core 320 (col. 11, lines 37-49). Nowhere does McKeown et al. disclose or suggest that a grant cell is sent from a destination line card, as would be required by claim 68.

For at least these reasons, Applicants submit that claim 68 is not anticipated by McKeown et al.

Independent claim 69 is directed to a switching device for transferring data. The switching device comprises a source line card and a destination line card including a grant generator to generate and transmit a grant signal to the source line card to authorize the source line card to transfer data to the destination line card. The source line card includes a data cell transmitter to transfer a data cell to the destination line card upon receiving the grant signal at the source line card. The switching device also comprises a switching fabric coupled to the source line card and the destination line card for receiving the grant signal from the destination line card and switching the grant signal to the source line card, and for receiving the data cell from the source line card and switching the data cell to the destination line card, where the switching fabric is configured to transmit a grant signal and a data cell together in a single data transfer unit.

McKeown et al. does not disclose or suggest the combination of features recited in claim 69. For example, McKeown et al. does not disclose or suggest a destination line card including a grant generator to generate and transmit a grant signal to the source line card to authorize the source line card to transfer data to the destination line card.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, page 5). Applicants respectfully disagree. As explained above, McKeown et al. discloses that switch core 320 generates and transmits a grant cell to line card 330a (col. 11, lines 37-49). Nowhere does McKeown et al. disclose or suggest that line card 330z (which the Examiner alleged is equivalent to the destination line card) generates a grant cell or transmits a grant cell to

line card 330a (which the Examiner alleged is equivalent to the source line card), as would be required by claim 69.

McKeown et al. also does not disclose or suggest a switching fabric coupled to the source line card and the destination line card for receiving the grant signal from the destination line card and switching the grant signal to the source line card, and for receiving the data cell from the source line card and switching the data cell to the destination line card, where the switching fabric is configured to transmit a grant signal and a data cell together in a single data transfer unit, as further recited in claim 69.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, pages 5-6). Applicants respectfully disagree. As explained above, McKeown et al. discloses that when an ingress line card 330a has data to send to egress line card 330z, line card 330a sends a request cell to port module 340a of switch core 320 and when port module 340a is ready to receive the data, port module 340a sends a grant cell to line card 330a (col. 11, lines 37-49). Nowhere does McKeown et al. disclose or suggest, for example, that switch core 320 (which the Examiner alleged was equivalent to the switching fabric) receives a grant signal from line card 330z (which the Examiner alleged is equivalent to the destination line card) and switching the grant signal to line card 330a (which the Examiner alleged is equivalent to the source line card), as would be required by claim 69.

McKeown et al. also does not disclose or suggest that the switching fabric is configured to transmit a grant signal and a data cell together in a single data transfer unit, as required by claim 69. The Examiner alleged that McKeown et al. discloses this feature and identified the grant signal shown in Fig. 8 of McKeown et al. for support (final Office Action, page 6).

Applicants respectfully disagree.

McKeown et al. describes that the grant cell shown in Fig. 8 is transmitted strictly between line card 330a and switch core 320 (col. 13, lines 12-64). Nowhere does McKeown et al. disclose or suggest that switch core 320 sends a grant signal from a destination line card to a source line card, let alone transmitting the grant signal and a data cell together in a single data transfer unit, as required by claim 69.

For at least these reasons, Applicants submit that claim 69 is not anticipated by McKeown et al.

Independent claim 70 is directed to a method for transferring data between line cards in a router, where the router has a plurality of line cards and a switching fabric coupled to the line cards. The method comprises transmitting a request signal from a source line card to a destination line card through the switching fabric; upon receiving the request signal at the destination line card, sending a grant signal from the destination line card to the source line card responsive to the request signal to authorize the source line card to transfer data to the destination line card; transferring a data cell from the source line card to the destination line card in response to the grant signal received at the source line card; and transferring, by the switching fabric, at least two of a request signal, a grant signal, or a data cell together in a single data transfer unit.

McKeown et al. does not disclose or suggest the combination of features recited in claim 70. For example, McKeown et al. does not disclose or suggest transmitting a request signal from a source line card to a destination line card through the switching fabric.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, page 6). Applicants respectfully disagree. As explained above, McKeown et al. discloses that

line card 330a (which the Examiner alleged is equivalent to the source line card) sends a request cell to switch core 320 (which the Examiner alleged is equivalent to the switching fabric) and receives a grant signal from switch core 320 (col. 11, lines 12-47). Nowhere does McKeown et al. disclose or suggest that switch core 320 transmits a request signal from line card 330a to line card 330z (which the Examiner alleged is equivalent to the destination line card), as would be required by claim 70.

McKeown et al. also does not disclose or suggest that upon receiving the request signal at the destination line card, sending a grant signal from the destination line card to the source line card responsive to the request signal to authorize the source line card to transfer data to the destination line card, as further recited in claim 70.

The Examiner alleged that McKeown et al. discloses these features (final Office Action, page 6). Applicants respectfully disagree. As explained above, McKeown et al. discloses that switch core 320 sends a grant signal to line card 330a (col. 11, lines 12-47). Nowhere does McKeown et al. disclose or suggest that line card 330z transmits a grant signal to line card 330a, as would be required by claim 70.

For at least these reasons, Applicants submit that claim 70 is not anticipated by McKeown et al.

Independent claim 80 is directed to a method for controlling the transfer of data packets through a switching device having a plurality of line cards and a switch fabric therebetween for transferring data packets. The method comprising transferring data packets and flow control together on a same path through the switching device.

McKeown et al. does not disclose or suggest the combination of features recited in claim

80. For example, McKeown et al. does not disclose or suggest transferring data packets and flow control together on a same path through a switching device.

The Examiner alleged that McKeown et al. discloses sending both a request cell and a grant cell on a same path through the switching device (final Office Action, pages 6-7).

Applicants respectfully disagree.

Applicants submit that the Examiner is not addressing the features of claim 80. Claim 80 does not recite sending a request cell and a grant cell on a same path, but instead recites transferring data packets and flow control together on a same path. Even assuming, for the sake of argument, that the request cell and the grant cell could be equated to data packets and flow control (a point that Applicants do not concede), McKeown et al. discloses that switch core 320 receives a request cell from line card 330a and transmits a grant cell to line card 330a (col. 11, lines 37-49). Nowhere does McKeown et al. disclose or suggest that the request cell or the grant cell are transmitted through switch core 320, as would be required by claim 80.

For at least these reasons, Applicants submit that claim 80 is not anticipated by McKeown et al.

Independent claim 81 recites features similar to features recited in other ones of the independent claims discussed above. Claim 81 is, therefore, not anticipated by McKeown et al. for at least reasons similar to reasons given with regard to the other independent claims.

Independent claim 82 is directed to a method for controlling the transfer of a data packet through a switching device having a plurality of line cards and a switching fabric therebetween for transferring data packets, where each line card includes an input section including one or more input ports and an output section including one or more output ports. The method

comprises generating flow control messages at the source line card and destination line card to authorize a transfer of the data packet from the source line card to the destination line card; and transferring the flow control messages between the source and destination line cards including transferring flow control messages from the input section of a line card to the output section of a different line card using the switching fabric, and transferring flow control messages from the output section of a line card to the input section of a same line card without using the switching fabric.

McKeown et al. does not disclose or suggest the combination of features recited in claim 82. For example, McKeown et al. does not disclose or suggest generating flow control messages at the source line card and destination line card to authorize a transfer of the data packet from the source line card to the destination line card, for at least reasons similar to reasons given above with regard to the other independent claims.

McKeown et al. also does not disclose or suggest transferring flow control messages from the output section of a line card to the input section of a same line card without using the switching fabric, as further recited in claim 82. McKeown et al. does not disclose anything similar to this feature of claim 82. The Examiner alleged that McKeown et al. discloses this feature but did not identify any portion of McKeown et al. that supports the Examiner's allegation. If the Examiner persists with this rejection, Applicants respectfully request that the Examiner identify the specific portion of McKeown et al. that discloses this feature.

For at least these reasons, Applicants submit that claim 82 is not anticipated by McKeown et al. Claim 84 depends from claim 82 and is, therefore, not anticipated by McKeown et al. for at least the reasons given with regard to claim 82.

Independent claim 83 is directed to a method for controlling the transfer of a data packet through a switching device having a plurality of line cards and a switching fabric therebetween for transferring data packets. The method comprises generating flow control messages at the source line card and destination line card to authorize a transfer of the data packet from the source line card to the destination line card, each flow control message only including a source and destination line card address; and transferring the flow control messages between the source and destination line cards using the switching fabric where minimal data buffering is performed by the switching fabric in processing the flow control messages.

McKeown et al. does not disclose or suggest the combination of features recited in claim 83. For example, McKeown et al. does not disclose or suggest generating flow control messages at the source line card and destination line card to authorize a transfer of the data packet from the source line card to the destination line card, where each flow control message only includes a source and destination line card address. McKeown et al. does not disclose anything similar to a flow control message that includes only a source and destination line card address. The Examiner alleged that McKeown et al. discloses this feature but did not identify any portion of McKeown et al. that supports the Examiner's allegation. If the Examiner persists with this rejection, Applicants respectfully request that the Examiner identify the specific portion of McKeown et al. that discloses this feature.

For at least these reasons, Applicants submit that claim 83 is not anticipated by McKeown et al.

Independent claim 86 recites features similar to features recited in other independent claims discussed above. Claim 86 is, therefore, not anticipated by McKeown et al. for at least

reasons similar to reasons given above with regard to the other independent claims.

In view of the foregoing remarks, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 44-49, 68-70, 80-84, and 86 under 35 U.S.C. § 102(e) based on McKeown et al.

In paragraph 7 of the final Office Action, the Examiner rejected claims 51, 52, 54, 56, 58, 66, 67, 73, and 78 under 35 U.S.C. § 103(a) as allegedly unpatentable over McKeown et al. in view of Stevens. Applicants respectfully traverse the rejection.

Claims 51, 52, 54, 56, 58, 66, 73, and 78 variously depend from claims 45 and 70. The disclosure of Stevens does not cure the deficiencies in the disclosure of McKeown et al. identified above with regard to claims 45 and 70. Therefore, claims 51, 52, 54, 56, 58, 66, 73, and 78 are patentable over McKeown et al. and Stevens, whether taken alone or in any reasonable combination, for at least the reasons given with regard to claims 45 and 70.

Independent claim 67 is directed to a switch fabric in a switching device having a plurality of line cards and a switch fabric therebetween for transferring data packets. The switch fabric comprises a plurality of first stage crossbars in a first stage, each first stage crossbar having a plurality of input ports and a plurality of output ports, each input port having a first request spray engine to receive a plurality of request signals associated with a destination line card and spray the request signals to different ones of the output ports in the same first stage crossbar; a plurality of second stage crossbars in a second stage, each second stage crossbar having a plurality of input ports and a plurality of output ports, each input port having a second request spray engine to receive one of the request signals from one of the first stage crossbars and send the request signal to one of the output ports in the same second stage crossbar; and a

plurality of third stage crossbars in a third stage, each third stage crossbar having a plurality of input ports and a plurality of output ports, each input port having a third request spray engine to receive one of the request signals from one of the second stage crossbars and send the request signal to one of the output ports in the same third stage crossbar.

Neither McKeown et al. nor Stevens, whether taken alone or in any reasonable combination, discloses or suggests the combination of features recited in claim 67. For example, neither McKeown et al. nor Stevens discloses or suggests a switch fabric that comprises, among other things, a plurality of first stage crossbars in a first stage, where each first stage crossbar has a plurality of input ports and a plurality of output ports, and each input port has a first request spray engine to receive a plurality of request signals associated with a destination line card and spray the request signals to different ones of the output ports in the same first stage crossbar.

The Examiner admitted that McKeown et al. does not disclose or suggests these features (final Office Action, page 12), but alleged that Stevens discloses these features (final Office Action, pages 15-16). Applicants respectfully disagree.

Stevens does not disclose or suggest each input port of a first stage crossbar that has a first request spray engine to receive a plurality of request signals associated with a destination line card and spray the request signals to different ones of the output ports in the same first stage crossbar, as required by claim 67. The Examiner did not specifically address this feature. If the Examiner persists with this rejection, Applicants respectfully request that the Examiner identify the specific portion of Stevens that discloses each input port of a first stage crossbar that has a first request spray engine to receive a plurality of request signals associated with a destination line card and spray the request signals to different ones of the output ports in the same first stage

crossbar, as required by claim 67.

For at least these reasons, Applicants submit that claim 67 is patentable over McKeown et al. and Stevens, whether taken alone or in any reasonable combination.

In view of the foregoing remarks, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 51, 52, 54, 56, 58, 66, 67, 73, and 78 under 35 U.S.C. § 103(a) based on McKeown et al. and Stevens.

In paragraph 8 of the final Office Action, the Examiner rejected claims 50, 71, 72, and 87 under 35 U.S.C. § 103(a) as allegedly unpatentable over McKeown et al. in view of Cisneros. Applicants respectfully traverse the rejection.

Claims 50, 71, and 72 variously depend from claims 45 and 70. The disclosure of Cisneros does not cure the deficiencies in the disclosure of McKeown et al. identified above with regard to claims 45 and 70. Therefore, claims 50, 71, and 72 are patentable over McKeown et al. and Cisneros, whether taken alone or in any reasonable combination, for at least the reasons given with regard to claims 45 and 70.

Independent claim 87 is directed to a method for recovering from a failure in a switching device including one or more source line cards and destination line cards, where the switching device transfers data packets through a network. The method comprises providing plural switching planes between each source line card and destination line card; generating flow control messages for authorizing a transfer of a packet from a source line card to a destination line card; spraying the flow control messages over each of the plural switching planes; and spraying data packets over switching planes on which flow control authorization messages are received.

Neither McKeown et al. nor Cisneros, whether taken alone or in any reasonable

combination, discloses or suggests the combination of features recited in claim 87. For example, neither McKeown et al. nor Cisneros discloses or suggests spraying flow control messages over each of a plurality of switching planes or spraying data packets over switching planes on which flow control authorization messages are received.

The Examiner admitted that McKeown et al. does not disclose or suggests these features (final Office Action, page 18), but alleged that Cisneros discloses these features (final Office Action, pages 19-20). Applicants respectfully disagree.

Cisneros does not disclose or suggest spraying flow control messages over each of a plurality of switching planes or spraying data packets over switching planes on which flow control authorization messages are received, as required by claim 87. The Examiner did not specifically address these features. If the Examiner persists with this rejection, Applicants respectfully request that the Examiner identify the specific portion of Cisneros that discloses, for example, spraying data packets over switching planes on which flow control authorization messages are received, as required by claim 87.

For at least these reasons, Applicants submit that claim 87 is patentable over McKeown et al. and Cisneros, whether taken alone or in any reasonable combination.

In view of the foregoing remarks, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 50, 71, 72, and 87 under 35 U.S.C. § 103(a) based on McKeown et al. and Cisneros.

In view of the foregoing, Applicants respectfully request reconsideration and allowance of pending claims 44-87.

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered

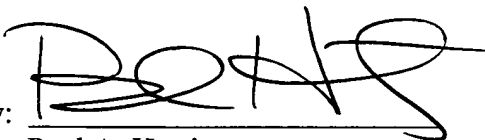
by the Examiner, placing claims 44-87 in condition for allowance. Applicants submit that the proposed amendments do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or implied in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.

By: 

Paul A. Harrity
Reg. No. 39,574

Date: September 28, 2005

11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
(571) 432-0800